

## CLAIMS

1. A device for continuous mixing of at least two components, such as liquids and/or powders, comprising a first means (8, 15; 108, 115) for joining the components in layers, and a second means (6, 18; 101, 129) for discharging the joined components during simultaneous deformation of a layer structure, obtained in the joining, to provide a homogeneous mixture of components, characterised in that the first means (8, 15; 108, 115) comprises a layering means (8; 108) and a receiving means (15; 115) rotatable about a longitudinal axis (13; 113) and having a receiving surface (22; 122) facing the layering means (8; 108) and arranged radially outwardly of the same, the layering means (8; 108) being adapted to alternately dispose the components in the form of thin layers on the receiving surface (22; 122) to form a stratum of layer structure, and the receiving means (15; 115), while rotating, being adapted to support said stratum.
2. A device as claimed in claim 1, characterised in that also the layering means (8; 108) is rotatable about said longitudinal axis (13; 113).
3. A device as claimed in claim 2, characterised in that the layering means (8; 108) is rotatable in a direction of rotation ( $P_1; P_{101}$ ) which is opposite to the direction of rotation ( $P_2; P_{102}$ ) in which the receiving means (15; 115) is rotatable.
4. A device as claimed in claim 2 or 3, characterised in that layering means (8; 108) is rotatable with a first angular velocity ( $\omega_1; \omega_{101}$ ), and the receiving means (15; 115) is rotatable with a second

angular velocity ( $\omega_2; \omega_{102}$ ) differing from the first angular velocity ( $\omega_1; \omega_{101}$ ).

5. A device as claimed in claim 4, characterised in that the first angular velocity ( $\omega_1; \omega_{101}$ ) is in the range 30-85 rad/s.

6. A device as claimed in claim 4 or 5, characterised in that the second angular velocity ( $\omega_2; \omega_{102}$ ) is in the range 30-85 rad/s.

7. A device as claimed in any one of the preceding 10 claims, characterised in that the layering means comprises a nozzle for each of the components, each nozzle being adapted to dispose thin layers of the component supplied thereto on the receiving surface (22; 122).

8. A device as claimed in any one of claims 2-6, 15 characterised in that the layering means (8; 108) comprises a blade means (10; 110) which is rotatable about said longitudinal axis (13; 113) and which during rotation is adapted to engage with the components supplied thereto and subsequently throw them away to dispose 20 thin layers of the components on the receiving surface (22; 122).

9. A device as claimed in any one of the preceding 25 claims, characterised in that the receiving means (15) is adapted to transfer the stratum to the second means (6, 18).

10. A device as claimed in claim 9, characterised in that the receiving means (15) comprises a body (17) having a conical interior circumferential surface (22) arranged concentrically about the longitudinal axis (13) and thus enclosing the layering means (8) 30 and forming said receiving surface (22), the receiving means (15), during rotation and under the action of centrifugal forces, being adapted to convey said stratum towards the wider end (11) of the conical receiving surface (22), at which end (11) the stratum will be transferred to the second means (6, 18) in consequence of the 35 rotation of the receiving means (15).

5 11. A device as claimed in claim 10, characterised in that the second means (6, 18) comprises a helical duct (6) which encloses the receiving means (15) and has a side open towards the receiving means (15), whereby the stratum continuously transferred from the receiving means (15) will be collected by said duct (6).

10 12. A device as claimed in claim 11, characterised in that the second means (6, 18) comprises in unison with the receiving means (15) rotatable discharge means (18), and that the duct (16) comprises an outlet connected thereto, the discharge means (18) being adapted to convey to the outlet (7) the stratum transferred to the duct (6) during deformation of its layer structure.

15 13. A device as claimed in claim 12, characterised in that each discharge means (18) comprises a vane (18) which is attached to the receiving means (15) and displaceable in the duct (6) and which during rotation of the receiving means (15) engages with the stratum transferred to the duct (6) and conveys it during simultaneous creasing thereof towards the outlet (7).

20 14. A device as claimed in any one of claims 1-8, characterised in that the second means (101, 129) comprises a scraper element (129) for scraping off the stratum from the receiving surface (122), and that the receiving means (115) is adapted to transfer, during rotation thereof, the thus scraped-off stratum to a discharge unit (101) of the second means (101, 129).

25 15. A device as claimed in claim 14, characterised in that the receiving means (115) comprises a body (117) having a cylindrical interior circumferential surface (122) which is concentrically arranged about the longitudinal axis (113) and which thus encloses the 30 layering means (108) and forms said receiving surface (122), and that the scraper element (129) is arranged along the receiving surface (122) for scraping off the

stratum from the receiving surface (122), said deformation of the stratum being provided during said scraping off.

16. A device as claimed in claim 15, characterised in that the scraper element (129) comprises a helical band element (129) which is extended parallel with the longitudinal axis (113) and which is arranged along the cylindrical receiving surface (122), the receiving means (115) being rotatable with a second angular velocity and the band element (129) being rotatable about the longitudinal axis (113) with a third angular velocity ( $\omega_{103}$ ) differing from said second angular velocity ( $\omega_{102}$ ), whereby the stratum formed on the receiving surface (122), during rotation of the receiving means (122) as well as the band element (129), is continuously conveyed to a discharge position (119) from which the stratum will be transferred to the discharge unit (101) of the second means (101, 129).

17. A method for mixing at least two components, comprising the steps of

joining the components in layers, and subsequently conveying the thus-joined components in such manner that a layer structure obtained in connection with the joining is deformed to form a homogeneous mixture of components,

characterised in that the step of joining the components comprises the steps of

30 alternately disposing, with the aid of a layering means (8; 108), thin layers of the components on a receiving means (15; 115) radially enclosing the layering means (8; 108) to form a stratum of layer structure, and by rotation of the receiving means (15; 115) supporting the stratum,

35 the layers in the circumferential direction being distributed uniformly on the receiving means (15; 115) in consequence of its rotation.

18. A method as claimed in claim 17, characterised by the steps of rotating the layering means (8; 108) with a first angular velocity ( $\omega_1$ ;  $\omega_{101}$ ), and rotating the receiving means (15; 115) with an angular velocity ( $\omega_2$ ;  $\omega_{102}$ ) differing from the angular velocity ( $\omega_1$ ;  $\omega_{101}$ ) of the layering means (8; 108), whereby the layering means (8; 108) engages with components supplied thereto and throws them in the form of thin layers to the receiving means (15; 115).